MUSEUM STORIES FOR CHILDREN

Presented by

The James Nelson and Anna Louise Raymond Foundation
for Public School and Children's Lectures

Series XXI, Number 1
September 30, 1933

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

INTERESTING INDIAN BLANKETS

One of the chief arts of the North American Indians is that of weaving blankets. When the Spaniards came to our country they found beautiful blankets and fine weaving among the Pueblo and Navaho Indians of the southwest. Perhaps these Indians learned this art from their neighbors to the south; or they may have originated it themselves because they needed and sought something better than mere skins for clothing.

In the early days, the Hopi Indians wove principally their own cotton to which they added some fibers of the yucca plants and animal hairs. When sheep were introduced by the Spaniards, they began to use a little wool. Their weaving is more complicated than that of other tribes. They not only produce a plain weave, but a checked one, and another which shows a repeated figure, usually a diamond.

Among the Hopis it is the men who do most of the weaving of the blankets, shawls, sashes, and clothing. A lovely custom is still followed in weaving the bride's clothing. After the most important of the wedding ceremonies, the bridegroom's father distributes cotton to all his men relatives and friends. They spin and weave this cotton for the bride, working for several days or weeks. During that time, the bride stays with her husband and his family helping to cook and feed the weavers. Very carefully and beautifully the men weave a large white robe, a small white robe, and a wide, white belt with long fringe.

When all are finished the bride wraps the small robe about herself, puts on white buck-skin boots and prepares to go to her mother's house where the young couple make their home for a while. She carries the large robe and belt in a rolled mat made of reeds bound together. After the wedding she uses the robes on ceremonial occasions and finally, the small one is wrapped around her body when death takes the little Indian woman to "Maski," the Home of Hopi Souls.

The Indians of the northwest coast seem to delight in color and movement. Perhaps their main thought is of the clan or family symbol which is expressed in totem poles, house fronts, house interiors, canoes, boxes and blankets. The Chilkats weave the most beautiful, fantastic blankets full of myths, and made in three colors—black, yellow and greenish-blue. Although the women weave the blankets they are not supposed to be familiar with the designs and so copy them from patterns which have been drawn on boards by the men. The design contains

the clan emblem and is usually of one or several animals so highly conventionalized that the Indians themselves can hardly explain them.

Not only the designs, but the materials used are different from those of other Indian blankets. The Chilkat woman takes the soft wool of the wild mountain goat and twists it around fibers of the inner bark of the cedar tree. These very strong threads of natural color are hung on the loom for the warp. The other threads, colored and containing no cedar fibers, are worked in and out of the strong warp threads. It takes about a year for a Chilkat woman to prepare the wool and weave one blanket, but it lasts for several generations.

The weaving of Chilkat blankets is almost a thing of the past. The younger Indian girls are not interested in spending so much time on robes whose ceremonial uses are almost forgotten. Only a very few old women are left who understand the art of weaving. Soon, even they will weave no more.

Perhaps the best known of Indian blankets are those made by the wandering Navahos. They practically live out-of-doors and the beauty of this is worked into their blankets. The women make these blankets, spinning the sheep's wool, dyeing it, and weaving it on hand looms. They often weave in crosses for good luck and symbols of the sun, moon, stars and lightning to bring the much needed rain.

The colors worked into the blankets by the older Navahos were symbolic. They were considered sacred, "a gift of the best of their gods." Take for instance red—it means the blessed sunshine in which they move and live. No wonder the Indian loves red and weaves the glorious warmth of it into her blankets. White stands for the early morning light which comes from the east and carries with it the hope of a new day. Blue stands for the cloudless afternoon sky in the south. The western sunset brings the yellows. Black comes from the far north where dark clouds gather and will, perhaps, bring the rain.

Thus the Navaho woman of yesterday and today weaves her very life into her blankets. Often she sings the night chant as she works, "With all around me beautiful, may I walk."

MIRIAM WOOD, Guide-lecturer

Note: Navaho blankets may be found in Hall 6; Hopi blankets are in Halls 6 and 7, and Chilkat blankets in Hall 10.

Save your Museum Stories. You will find them useful for looking up things you may want to know.

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STEPHEN C. SIMMS, Director

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Series XXI, Number 2
October 7, 1933

FIELD MUSEUM OF NATURAL HISTORY
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CHICAGO

THE HAWAIIAN ISLANDS

Of all the island possessions of the United States, none is more interesting than the Hawaiian group. It was this group to which Captain Cook, in 1778, gave the name, Sandwich Islands.

About 2,100 miles southwest of San Francisco, in the midst of the Pacific Ocean—a good six days' ocean trip away—are eight large islands and over a dozen small, rocky masses on which practically nothing will grow. In order of size the larger islands are Hawaii, Maui, Oahu, Kauai, Molokai, Lanai, Niihau and Kahoolawe. Honolulu, the capital, is located on the southern shore of the Island of Oahu.

Long, long ago, huge volcanoes formed on the ocean floor. Gradually, the melted materials overflowed and built up plateaus around the sides of the craters. It is the upper parts of those volcanoes which form the Hawaiian Islands of today. Corals have grown on the lava plateaus and formed reefs, many of which have reached the surface and formed fringes about the islands. Thousands of graceful palms have found homes on the corals.

Most of the volcanoes are now extinct, but not all. Hawaii—the island from which the entire group takes its name—has two famous volcanoes. Mauna Loa is thought to be the largest active volcano in the world. Kilauea contains a great lake of lava which frequently hurls itself upward belching forth fountains of gas and flame. In the past, the hot matter rushed to the brim or pushed through the sides and flowed to the sea. But in recent years, Kilauea has been better behaved. The natives have many weird legends about these two volcanoes. They used to think that the goddess Pelee lived inside Kilauea and that its eruptions were signs that she was angry with them and demanded sacrifices.

The islands have varying amounts of rainfall, due to the northeast trade winds being unable to carry the moisture over the high mountains. Any volcanic soil is good growing soil when sufficiently watered, so many regions of the islands are irrigated. In the low lands may be seen rice fields and sugar plantations, while back towards the hills are the coffee and pineapple areas. Hawaiian pineapples are said to be the most delicious in the world, and the canning of pineapples is one of the chief industries.

The scenery of Hawaii is of great beauty. Leaping waterfalls, short, swift rivers, long sweeping beaches and millions of brilliantly

colored flowers all combine to make it ideal as a resort. Added to these is the wonderful climate which has drawn to the land thousands of strangers. Foreigners now far outnumber the "Kanakas" or natives. This explains the title, "Cross-roads of the Pacific."

When Captain Cook went to the islands he found the people making beautiful feather capes and helmets and ceremonial "kahili" or staffs. Red, green, yellow and black feathers of the oo and iiwi were fastened into closely woven fiber network. So marvelously were the garments woven they had the appearance of velvet. About the heads and necks the natives wore wreaths of feathers. The wreath custom still exists. Strangers or friends are always presented with "leis" of flowers to wear about the neck. Everywhere the natives use flowers in their hair.

Like all peoples of the Pacific, the Hawaiians are fond of singing, dancing and sports. The surf-riders and the "hula dancers" have become famous. The people are naturally graceful and free in their motions at all times. Many of their well-known dance tunes have become familiar to us since the native "ukulele" was introduced into our land.

The islands have few native animals. There are no snakes. A few lizards, a few butterflies, moths and beetles are seen occasionally. These with the brilliantly colored birds and land snails make up the total. Foreigners have introduced horses, mules, cattle, sheep and goats. In the rice fields one often sees an eastern water-buffalo.

Gradually, the native thatched huts are giving way to wooden houses, the runner to the automobile and airplane, and the beaten bark cloth to the store clothes of the mainland. Coal and other minerals are shipped to the islands now and important manufactures are taking the place of hand industries. Dredging of the land-locked Pearl Harbor and the establishment of a naval station west of Honolulu have made the Hawaiian Islands of great importance to the United States.

Such is the land which greets the arriving guest with "Aloha!" and bids him farewell with the same "Aloha!"

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 25 is lava from Kilauea; the Hall of Mankind shows a bronze figure of a surf-rider, and Hall E shows feather capes and wands and other objects connected with early Hawaiian life.

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STEPHEN C. SIMMS, Director

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Series XXI, Number 3
October 14, 1933

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

WHY COLUMBUS SAILED WEST

During the early ages, the peoples of Europe had some queer ideas about the earth on which they lived. They were sure it was flat, and that any one foolish enough to go to the edge would fall off into space. They even ridiculed and punished those who dared to say it was round.

Nevertheless, there were some courageous men who spent their lives attempting to prove the earth like a ball in shape. Such men believed that traveling straight in one direction would finally return the traveler to his starting point. Aristotle, a Greek, who lived three hundred years before Christ, and who for twelve years was the teacher of Alexander the Great, not only expressed this belief openly, but stated it in many of his writings.

As time passed, people began to be more interested in the study of geography. They watched the sun rise in the east and set in the west and wondered how such an action could take place if the earth were really flat. They also studied the eclipses and figured that only a rounded earth could cast a round shadow on the moon or sun.

Gradually, the old belief gave way to the new. Seamen constructed larger and stronger boats and mariners dared to go out of sight of land. With the aid of the compass, as a guide, and the astrolabe to record the degrees of latitude, the southern tip of Africa was rounded, the eastern coast visited and the Indian Ocean crossed. Great was the rejoicing in Portugal when the Portuguese successfully established a sea route to India.

The new sea route was a terrible blow to Italy. For centuries, the Genoese and Venetian merchants had handled and distributed to Europe the luxuries brought by overland caravans from the Orient. Great fortunes had been made from the sales of spices, silks and perfumes. The demand for these had steadily increased since the return of Marco Polo (himself a Venetian merchant) and his two friends Nicolo and Maffee, from a journey to India, Ceylon, China and Japan. So delightfully had they spoken of the riches of those countries that a regular caravan trade had been necessary to supply the demands of the people.

Now there were troubles along the caravan routes. The Turks had conquered the western part of Asia and made passage difficult. There were wars and jealousies among the Italian merchants themselves. And the new sea route to India would deprive Italy of its position of

mistress of the markets. She had ships and sailors, but not sufficient for such an enterprise as charting a sea route to the Orient.

Among the Italian sailors was one who had formerly been a Genoese weaver. But such a quiet occupation was not to his liking, so he took to the sea. For many years, he had been interested in geography and had read all the old writers had to say about the earth. He also studied all the sailing charts he could find. One of these had been made by an Italian astronomer, by name Toscanelli, in 1474, and showed how the Indies could be reached by sailing westward. The more the sailor studied and read, the more he became convinced that the earth was round, and the greater became his desire to prove it. But he was a poor man and such an undertaking required ships, supplies and men.

Realizing that his own country could not finance such an expedition, he went to Portugal. For four years, he tried to convince the king that the Indies could be reached by sailing straight to the west. But the king, after sending out sailors to test Columbus' maps in secret, refused to help him. The sea route around the tip of Africa was long and very dangerous, but it had been the means of bringing great wealth to Portugal, so why should she abandon it?

Columbus then went to the court of Spain. This country, having at last succeeded in driving the Moors out, was anxious to acquire wealth and a leading position among the political powers of Europe. It seemed to Columbus that surely under such conditions the time was ripe to interest the rulers of Spain in his project. But again he was met with bitter disappointment. The king was not interested.

Five years passed. At last, the queen was prevailed upon to agree to finance his expedition, but, only on condition that any new lands discovered between Spain and the Indies should be claimed for the crown of Spain. At last, the forty-year-old, red-headed Genoese had his great desire.

CHIEF CHARACTERS IN THE PHOTOPLAY "COLUMBUS."

Christopher Columbus	Juan Perez, Prior of La Rabida
King John II of Portugal	King Ferdinand of Spain
Bishop of Ceuta	Queen Isabella of Spain

MARGARET M. CORNELL, Guide-lecturer

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

IN THE LAND OF THE TIBETANS

Tibet, in central Asia, has been called, "the home of the winds and the roof of the world," and well it may be.

This land, to which strangers are not welcome, occupies the greatest and highest uplift of the whole earth's crust. In the north, are cold, barren, windswept plains; in the south, are the Himalayas with glorious Mt. Everest rearing its snowclad, unscaled tip 29,002 feet above sea level.

In spite of the great heights at which the inhabitants must live, and the bitter winds which they must endure, the people are sturdy and happy. True, they may be unclean, according to our standards, but, perhaps, we too would not be so cleanly if we also lived where water is so difficult to procure. Only in valleys close to streams formed by melting snows from the mountains or in irrigated areas can crops be raised. There peas, millet, barley and wheat are grown. Millet is of greatest importance as it is the cereal served most often with the buttered tea.

Tibetan tea is very different from the drink served in our land. It is made from a poor quality of Chinese tea which has been pressed into the shapes of bricks. Chunks of the shredded tea are boiled and then placed in wooden churns with butter and worked until frothy. With the buttered tea and the millet, a Tibetan is satisfied.

Along the numerous trade routes, one may travel for days without seeing a person, then a group of black, yak-hair tents of the nomads will be sighted. Near-by, sheep will be feeding on the sparse grass, and in the hills yaks will be foraging for the moss on which they live. Yaks are beasts of burden of the mountains. They will travel day after day, at the rate of two miles per hour, groaning constantly. Their long, thick hair furnishes material for clothing and shelters, the flesh is eaten and the milk made into butter and cheese. Sheep are also used as carriers, especially in the regions where salt is to be transported. Salt is often the only kind of money used in bartering.

There are no large cities in Tibet, except Lhasa, the capital. The life of the people centers about the great monasteries located high above the valleys. The monasteries are like cities in that thousands of people live there carrying on all the industries and activities necessary for the welfare of such groups. It is in the monasteries that we find the tradesmen, nobility and the priesthood and the great Buddhist temples.

The ruler of Tibet is a priest-king known as the Dalai Lama. He is supposed to be the representative of Buddha, and as such, is looked upon as a holy and powerful man. When a Dalai Lama dies, a ruler is selected from among a group of boys each of whom is thought to have the spirit of some former Lama. It is said that there are over a thousand Lamas who have returned to earth after death, living in the land. They may be reincarnated in the body of some peasant boy baby, or in some nomad's son. Thus, the ruler represents no special group of society.

The Lamas, or priests, are the teachers of the people, and to them the people look for entertainment. They have charge of the pantomime dances in which the performers represent gods and demons. The masks worn, might to a stranger, seem crude and grotesque, but to the native onlookers, each has a definite meaning, and helps to explain some religious idea.

There is neither theatre nor stage in Tibet. When the mystery plays are presented by the Lamas, they take place in the open courtyards of the monasteries. No scenery is used and no words spoken. The play is indeed pantomime. Occasionally, some wealthy man will hire professional players to perform a popular drama. As the words are merely read, the performance has little of the play about it. All plays and dances are given for the purpose of impressing upon the people the power of the church, or Buddhism. It is in this manner that the Lamas have kept their influence over the Tibetans. This may help to explain why outsiders with foreign ideas of living and believing are not wanted in this secluded land.

Of course, the day will come when the outside world will have an opportunity to visit this high, windswept region unmolested. Then will be seen the beautiful temples with their artistic paintings, stone carvings and bronzes and the majestic scenery of which the world now knows so little.

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 32 is a large collection of Tibetan objects. Temple life is shown by wood carvings, paintings, masks, articles of stone, bronze and bone, musical instruments and prayer wheels.

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Series XXI, Number 5
October 28, 1933

FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

GNUS

When the Dutch settlers arrived in South Africa they found an unusual appearing animal of freakish actions which they called "zwart wildebeest" meaning black wild beast or black wild ox. The Hottentot natives of that region had named the animal the "T'gnu" in imitation of the bellowing snorts of the old bulls. Nowadays, it is known as the black wildebeest or the white-tailed gnu.

The South African natives killed animals for food, but only what they needed, so when the Dutch arrived the gnus existed in large numbers. The settlers did not eat the meat much themselves, but they did feed their Hottentot servants with it. The hides were made into harness, whips, ropes, and other farm gear. Later the wholesale killing for the hide trade developed, and now the white-tailed gnus are almost extinct in the wild state.

The gnus live on the open plains in troops of eight to fifty. Where they are much hunted, however, they have taken to living in brushy or forested regions. During the winter the old males often live apart, either in troops or each by itself. At times, the gnus go through curious antics. They paw the ground with their hoofs, tear it with their horns, strike at each other, lash with their tails, and dart and prance about. Probably these antics are efforts to free themselves from bot-flies which during their worm stage live in the nostrils and ears of the gnus.

There is but one young born at a time and although the mother feeds it milk for seven or eight months it begins to eat grass when only one week old. The white-tailed gnus do well in captivity, but the males are dangerous and they can never be trusted.

Because of the maned neck, and the long, horse-like tail the gnu has been called the "horned horse," but it is one of the true antelopes. It has the body and legs of an antelope, the head of a buffalo or ox, and the mane and tail of a horse. The long, black hair on the throat and chest, the very broad muzzle, and the long, black hair pointing upward on the face give the gnu a strange and grotesque appearance.

The home of the white-tailed gnu was, for the most part, south of the Orange River. To the north of the river it was replaced by the blue wildebeest ("blaauw wildebeest" of the Dutch), brindled wildebeest, or, as others call it, the black-tailed gnu. This gnu is found northeastward as far as the equator. There are several varieties of the

brindled gnu, including the white-bearded gnu one of which is mounted in Field Museum.

Instead of being brownish in color as is the white-tailed, the blue gnu is, as the name suggests, a sort of bluish or grayish color. Other differences are: it is larger, the head is narrower, the long hair on the face points downward instead of upward, there is no hair on the chest, and the shorter tail is white. Stripes of hair on the sides and neck, which are differently directed from the other hair, give a "brindled" appearance.

Many of the habits of these gnus are similar to those of the white-tailed ones, although in some ways they differ. These are often found in company with zebras, impalas, and ostriches, sometimes with giraffes. Swift and enduring in their flight they are hard to run down, but their habit of stopping to satisfy their curiosity sometimes enables the hunter to get close enough for shooting.

Their powers of resistance are remarkable, as even badly wounded ones frequently escape. Since the wounded may charge, the hunter must be on his guard. When pursued, a band tends to string out, the lighter females run in front, the heavier males follow. They may be so strung out as to give the appearance of running in single file.

When we read about African animals, very often we find them described as existing in countless numbers. In the earlier days they did, but now much of Africa is settled, and from settled regions the larger wild animals have disappeared just as has happened in the United States. Fortunately, reserves have been established in a number of places and there the animals are safe from human hunters. Consequently the black-tailed gnus should live on for a long time to come, but not in the countless numbers which the first settlers found.

Gnus are popular zoo inhabitants, as people like to see them go through their strange antics.

FRANKLIN C. POTTER, Guide-lecturer

Note: In Hall 13 (Pullman Hall) there are three mounted gnus: a male and a female white-tailed gnu, and a male white-bearded gnu.

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The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures

Series XXI, Number 6
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FIELD MUSEUM OF NATURAL HISTORY
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CHICAGO

The next time you go to the dunes, look about in the sands for bits of a gray, slag-like substance. If sand particles are clinging tightly to the outside and the inside is hollow, smooth and shiny, you have found a piece of Mother Nature's glass. At the Museum, such glass is called "fulgurite" from the Latin word "fulgur" which means lightning.

Once in a great while, lightning strokes pass from the air above into sands of the earth. If the sands are quartz sands and the temperature of the lightning is high enough (around 2160 degrees Fahrenheit) the heat will melt the grains of sand and form natural glass. The force is so great that the melted portions of glass are pushed outward leaving a cavity in the center. Around the center will be found glass in all stages of melting, according to the amount of heat to reach the sand grains. Long pieces of fulgurite are seldom found as fulgurites are fragile and usually embedded in loose sand.

Another kind of natural glass is found in volcanoes. When certain kinds of earth liquids, known as acid lavas, cool rapidly at the surface and harden before having an opportunity to form crystals, obsidian is formed. This glass was used by the Indians of ancient Mexico for the making of beautiful mirrors, spearheads, tooth-inlays and implements. The Mound Builders of our own country used both the black and reddish-brown obsidians in making weapons and implements. There is a great mass of aged obsidian which has become exposed in Yellowstone Park. It is called, "The Glass Mountain."

An interesting form of lava found on Mt. Kilauea is Pelee's Hair. It really is formed of hair-like threads of glass. When in large masses it looks much like the tow which engineers use in cleaning their engines. This glass is formed when molten material rises high enough in the throat of the volcano for the wind to catch particles and draw them out into hairs or threads.

Just when or how man first discovered the way to make glass is not known. There is an old legend giving the Phoenicians credit. According to that tale, some Phoenician sailors who were spending the night on a seashore, dropped some soda into the fire and the next morning discovered a strange substance. The fire had melted the soda and sand grains and made what we today call glass.

From very old Egyptian tombs have come lovely blue glass beads. So the people of the Nile Valley must have known how to mix soda, lime and quartz sands and how to apply the right amount of heat. On the wall of the Beni Hasan tomb is a painting which shows a workman blowing through a hollow tube to shape the liquid glass clinging to the end of the tube. Small glass concerns use the same method today in making glass bottles, but the large factories are installing machines for the purpose.

The Romans were so interested in the Egyptian glass that they hired some of the workmen to go to Rome and start factories there. Soon a certain part of the city was given over to glass makers, and a tax imposed upon them, so rich did they become. They made glass so thick it could be used for pavements, or so thin it could be used as wall covering. Very few buildings had glass windows as no one, except a wealthy person, could afford such a luxury.

For many years, Venice led the world in the making of glass of exquisite shapes and delicate colors. The method used was kept a secret, and any one giving away any detail was severely punished.

But such things do not remain secrets long. Soon Germany, England, France and then the United States established glass industries. The English, in 1557, had discovered that by adding lead to the quartz and soda mixture and heating it in covered pots instead of in open hearths, a hard flint or "crystal" glass was secured. This could be cut into objects of great beauty. That was the beginning of "cut glass." The next great step was a method of casting glass in sheets. Up to that time a piece of glass could not be blown out farther than four feet. The new process made glass sheets seven feet long and four wide.

Today, a glass factory may make plain glass using only the soda, lime and quartz of the ancients and melt it in fine fire-clay melting pots, using only hand labor, or they may make glass that contains other materials, for special purposes, and have great complicated machines, that do the work of hundreds of people.

MARGARET M. CORNELL, Guide-lecturer

Note: Glass may be found in Halls 2 and 35, and on the ground floor in Hall J.

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FIELD MUSEUM OF NATURAL HISTORY
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THE APHIDS

Plants, like animals, have hosts of enemies. In a temperate climate, such as ours, one of the worst plant pests is the aphid or plant-louse, frequently called, "The Ants' Cow."

Aphids are tiny, soft-bodied insects with strong sucking beaks, which can be forced into plant stems or leaves for the purpose of withdrawing the juices. When not robbing the plants of their life-giving fluids, the insects carry the beaks bent back under the heads and bodies.

In color, aphids may be brown, green, orange, black or a cottony white. The colors are protective and frequently a person does not realize that a twig is covered with plant-lice until the hand has closed about it.

The story of the aphids is rather unusual. In the fall small, black, oblong eggs are deposited on the bark of trees or shrubs, or on twigs close to sleeping buds. Neither cold winds, nor storms can hurt them.

When the warm spring sunshine swells the buds into shape, the aphid eggs hatch. The tiny baby insects, known as "nymphs," soon find their way into the buds and begin their destructive work. So rapidly do they grow that they may shed four skin suits before they are adults. This may mean seven days, or it may mean twenty, depending upon the kind of aphid.

All aphids hatched from eggs develop into mothers without any wings. They are called "stem mothers." Although they themselves came from eggs, most of them do not lay eggs. Their babies are born alive and all are daughters. As a "stem mother" frequently has a daughter every ninety minutes, you see how it is possible for a rose bush to become thick with aphids in just a few days. Once in a great while, a daughter is born who grows wings. She leaves her mother and sisters and goes to some other plant of the same kind to start a daughter family of her own. Not until fall are any sons born, or any eggs laid.

Some kinds of aphids spend their entire lives on one kind of plant; some lay the eggs on one kind, but spend the summer on another kind. Such aphids always return in the fall to the kind of plant on which the eggs were laid. The aphids, for instance, that hatch from the plum tree in your yard will spend their summers on near-by grasses. Those still living in the fall will return to the plum tree for their egg-laying.

There is hardly a plant in our gardens, greenhouses or forests that does not have some kind of aphid enemy. When leaves curl on a growing plant it is time to use a spray to clog up the breathing holes on the sides of the aphids' bodies. Soap is excellent. If you see a stalk of goldenrod which has its leaves drawn together you may be sure aphids have been at work there, and the spiked galls on poplar stems are proof of plant-lice residences there. Many are the kinds of plants they choose for their workshops.

The juices stolen from the plants are used as food for the aphids and for the making of honey-dew. This sweet substance is stored in the alimentary canals of the aphids. But it does not stay there long.

Did you ever touch a rose twig and then notice ants run excitedly up and down the stem? They had reason to be worried. The aphids are their cows. Often the ants construct mud walls around the stems to prevent the aphids escaping. When the ants desire the honey-dew they gently stroke the aphids and they in turn give up their sweet liquid made from plant juices, just as cows give up their milk when milked by the dairyman.

So important are the aphids in the life of the ant community, that certain ants are assigned the care and guarding of the plant-lice. In many ant villages, the eggs are cared for during the winter that nothing may happen to them.

The corn-root aphid is kept, in the egg form, in the nests of the common field ants throughout the cold weather. When they hatch they are cared for as carefully as the ants' own young and transferred to the smartweed or some similar plant just as soon as possible. There they suck the juices until the tender corn plants are firmly rooted. Then the ants move them to the corn-roots.

Aphids have many enemies. Spiders and beetles wage a constant warfare, to say nothing of the millions killed by birds and men. The ladybird beetle is the best friend you can have about your gardens and on your plants. Where it chooses to stay no plant-lice will linger.

Watch your plants at home. Should a tiny insect be seen on stem or leaf remove at once and destroy before it has a chance to lay eggs for next summer's aphid colony.

MARGARET M. CORNELL, Guide-lecturer

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STEPHEN C. SIMMS, Director

MUSEUM STORIES FOR CHILDREN

Presented by

The James Nelson and Anna Louise Raymond Foundation
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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

MUSK-OXEN

Musk-oxen formerly lived throughout the whole polar region and in northern Europe and Asia, but now they are found only on the "barren-grounds" of North America from the northeast side of Hudson Bay northward over the Arctic islands to Greenland. They do not migrate even in the winter, but spend the season of darkness on the wind swept areas covered with frozen grass and snow.

The musk-ox is more like the American buffalo than any other animal, although it is much shorter than the buffalo. The earliest published account of the musk-ox was by a Frenchman, Jeremie, in 1720. He reported, "They have very short legs, so that the wool hangs always to the ground when they walk; this makes them seem so deformed that one can hardly tell at a distance, at which end they have the head."

The hair is long, but it does not often touch the ground. It is long enough for the baby musk-ox to hide itself by standing under its mother. Besides the long outer hair, there is an undercoat of thick wool which protects the animal in cold weather.

Strangely enough, the musk-ox has no visible tail. Animals, living in places where flies and mosquitoes are bad, usually have tails to keep away such insects. The musk-ox, however, has musk glands and the odors from these keep the pests away. The name "musk-ox" comes from this musky odor. The Eskimos call the animals, "Oomingmak," or "Oomingmung," and Ellesmere Island, "Oomingman," which means, "Land of the Musk-oxen."

Musk-oxen have been used by the Eskimos for many years. The meat is considered delicious and tastes something like beef: the milk is abundant and rich; the wool is prized highly because it never shrinks; the skin serves many purposes, and the horns can be carved into ladles and spoons.

Many years ago when musk-oxen were still plentiful, the Eskimos depended on them more than they do now. They were easier to get than the reindeer. Dogs frightened the animals until they huddled together. Thus standing with lowered heads, they presented a formidable circle of horns to the dogs who dared not go close, but the Eskimos went near enough to throw their darts and harpoons.

After a time the animals began to drift farther north and the Eskimos followed the "musk-ox road" ever onward toward the north

and east. Some did not move on as far as the musk-oxen, so they soon learned, through necessity, to use for food such animals as seal, walrus, polar bear and reindeer. Gradually all used these animals for food and clothing in place of the fast dwindling musk-oxen. Today, it is unusual for an Eskimo to capture a musk-ox.

The mother musk-ox has one baby a year, which is usually born in May. It looks much like a "fuzzy lump of black moss." Some people say she hides her baby in the snow and moss for two or three days until it can travel around with her. She is a devoted mother and always stays close to her one youngster. Even the old bulls are ready to help protect the young ones. At the sight, smell or sound of danger the whole herd, varying in number from ten to one hundred, bunches together, the little ones seeking their mothers. The old bulls stalk around the group with lowered heads. They may rub their horns and heads between their fore legs to brush away the frost about the eyes condensed there from the breath. The bulls, bellowing with rage, charge one at a time. Each bull retreats at once to his herd for fear of being cut off from it. Sometimes the animals run, and in spite of their short legs and long hair they are quick in getting away, even up steep hills.

The white wolf is the chief enemy of the musk-ox. When alone and attacked by a wolf, the musk-ox repeatedly jumps into the air and then down with full force on the back of the wolf. That is the instinctive method of crushing the white wolf.

There are several superstitions among the Eskimos and Indians about musk-oxen. The Indians believe that if a living musk-ox is taken from the country all the other musk-oxen will follow and be gone forever. Thus, for many years it was very difficult to secure any of these animals even for zoos because the Indians would find some way of preventing their leaving the country.

To protect those that remain, the Canadian government has set apart certain areas as musk-oxen preserves. There, they may live in peace safe from Eskimo and Indian weapons and guns of the white man.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 16 there is a habitat group of musk-oxen showing not only the animals but the barren country where they live.

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MUSEUM STORIES FOR CHILDREN

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
CHICAGO

KANGAROOS

More than one hundred and sixty years have passed since the voyage of Captain Cook which resulted in the discovery of Australia and its kangaroos. Since that time Australia has been known as "The Land of the Kangaroo." These animals are also found on some of the near-by islands.

The Australians in some ways are proud of their unusual animal, as on some of their postage stamps a kangaroo is shown on a map of the country; it is also shown on the coat of arms. In other ways they are not so proud of it as for many years a government bounty was paid for the scalp of every kangaroo that was killed. In some parts of Australia drives are still held each year for the purpose of killing these pests that feed on the cultivated crops. This also saves the wild grass for sheep and cattle.

Just where the word "kangaroo" came from is not known. Perhaps it came from the native words "koongaroo" or "kungara." Other native words which are known to stand for certain kinds of kangaroos are "menua," "purra," and "kaiimer."

The native black people of Australia made good use of the kangaroo. They ate its flesh, used its skin for clothing, needles were made from the leg bones, and the tendons were used for thread. The people of today seldom eat kangaroos, but they do kill them for their pelts of which thousands are shipped each year.

When pouched animals are mentioned we think usually of kangaroos, although here in the United States the opossums also have pouches in which to carry their young. When the young kangaroo first enters the pouch after birth it sleeps, drinks milk, and grows. When older and better developed it begins to leave the pouch, but for some time it enters the pouch when tired or at a sign of danger.

A male (father) kangaroo grows all his life, even growing a little in old age. "Boomer" is the name given to large males that have escaped their enemies and lived long enough to grow much larger than most of their kind.

Sometimes in circuses we see boxing kangaroos. You might think that the teaching would take a long time, although actually they are taught but little; it is natural for them to box in the wild state.

For the most part their boxing is peaceful enough, but during their mating seasons the fights are fierce indeed.

The food of kangaroos consists of plant matter, mostly grasses or leaves depending on the sort of country and its vegetation. There are kangaroos which live in the grasslands, others reside in the forests, some live in bush or thicket regions, while still others prefer rocky hills or mountain localities.

When captured alive some kangaroos pine away and die. Happily, however, many become contented and seem perfectly satisfied in captivity as long as they have plenty of room in which to move about. Some kangaroos which have been tamed by people will not return to the wilds if given the chance. People have even tried to drive their pets away, but without success.

When moving about the kangaroo uses its long hind legs, and it hops rather than walks. The small front legs are used for boxing, for gathering and holding food, but not in hopping. Ordinarily a hop is for four or five feet, but the faster the animal goes the longer are the hops; a fully grown kangaroo may travel twenty-four to twenty-seven feet in a single hop. The record leap is over a nine foot fence. While resting the tail is used as a prop or third leg; when hopping it is used only for balancing.

Only a few thousands of years ago the kangaroos and other Australian pouched animals were much larger than the living forms. The diprotodons, which were pouched animals more like opossums than like kangaroos, had skulls three feet long and bodies larger than those of rhinoceroses. The giant kangaroos of that time had skulls as large as those of horses. The huge forms of the past have died out, however, and the smaller, living kinds remain.

FRANKLIN C. POTTER, Guide-lecturer

Note: In Hall 15 there are eight different members of the kangaroo family. Hall 19 contains a kangaroo skeleton, while in Hall 38 there is a painting of the giant kangaroo and the great diprotodon of the past.

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STEPHEN C. SIMMS, Director

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FIELD MUSEUM OF NATURAL HISTORY
Roosevelt Road and Lake Michigan
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HIBERNATION

In the fall of the year most forms of animal life prepare for the coming winter. Many of the birds fly south; the squirrels gather nuts and hide them in the ground, and the bees store up honey. Those who have played throughout the summer and autumn with never a thought for the winter, often die from the cold and lack of food. Most of the lazy grasshoppers, so happy in the warm seasons, die in the winter. Only their eggs, buried in the ground, survive and hatch in the spring.

Several animals spend the winter sleeping. This winter sleep is known as "hibernation." The grizzly bear, for instance, eats plentifully through the summer and fall up to within a month before hibernating. By that time he is "almost solid fat." Then he digs a hole in some hillside or goes into a crevice where the snow falls the deepest, curls up, and sleeps until March.

During this winter sleep all body activities slow down. The heart beats more slowly, breathing almost stops, and the body becomes almost cold. In this sleep of several months, buried in the ground below the frost, without food or water, and with but little air, the bear is unconscious of the severe cold above him.

When the grizzly bear comes out of his den in the spring he is still rather plump. He does not eat for the first week or so but he does drink plenty of water. Gradually he adds grasses and herbs until finally his normal appetite returns.

The polar bear mother "dens up" in an ice cave where the little ones are born during the winter. There she remains quiet, but does not sleep all the time.

Among the animals that sleep soundly for several months, take no food, and seem almost dead, is the woodchuck. It is often called a "seven sleeper" because it usually sleeps seven months (from the first of October to the end of April).

Some animals store up food in their burrows and awaken occasionally to feed, and then go back to sleep again. The European dormouse does this and just before hibernation acts peculiarly; he is either slow and stupid or extremely lively. He then curls himself up into a round ball with fore paws on his cheeks, nose pointing toward his stomach, and tail wrapped around his body and head. In the sleep that follows, he becomes so cold and rigid that his body may be rolled like a ball.

The chipmunk prepares for winter by storing seeds and nuts in hidden chambers connected with his underground den. When storing this food he may attempt to carry four white oak acorns in each cheek pocket. Once in a while his pouches are so full that his head is too wide to go into the burrow entrance unless he turns it sidewise.

Like the dormouse, the chipmunk does not sleep soundly all winter, but awakens at intervals, feeds on the stored food, and then curls up in his cozy den for another nap. When warm weather brings him to life again he announces his return to the world by mounting a log and singing a series of bird-like "chock-chocks." Other chipmunks, just coming from their winter quarters, join in this happy song.

The striped gopher or ground squirrel stores up all kinds of seeds, grain, and roots, but does not eat them during the winter. The gopher seems to be a sound sleeper and does not awaken until early spring. Food is not plentiful then, so he resorts to his well-filled store room, until food can be obtained in the fields.

Not only birds and mammals prepare for winter, but reptiles and amphibians. In the early fall the garter snakes congregate on warm, sunny hills where they find crevices or burrows deep enough in the ground to prevent the frost reaching them. As long as the days are sunshiny, they come up to bask for brief intervals before the long sleep sets in.

Turtles and newts bury themselves in the mud and water as the frogs and salamanders often do. Toads, however, crawl into holes and cover themselves with soil and grass.

Certain insects pass the winter in sleep. The common house fly hides in some dark corner of the house and remains in deep sleep. When disturbed, it drops to the floor like a dead fly or acts stupidly.

A few fishes, like the carp, eel and minnows lie dormant in the mud beneath the ice during the severe parts of the winter.

With the coming of spring, all awaken from their winter sleep or "hibernation" and start their busy lives again.

MIRIAM WOOD, Guide-lecturer

Note: In Halls 15 and 16 may be seen some of the animals that hibernate. The bird groups are in Halls 20 and 21. Exhibits of fish, reptiles and amphibians are in Hall 18.

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